Amendments to the Claims

1.-10. (Cancel)

11. (New) An antibody that specifically binds to human RPTP.

12. (New) The antibody of claim 11, wherein the antibody is any one of a monoclonal antibody, a polyclonal antibody, an anti-idiotypic antibody, or a chimeric antibody.

13. (New) The antibody of claim 11, wherein the antibody is specific for at least one epitope of a human RPTPα.

14. (New) The antibody of claim 13, wherein the amino acid sequence of the human RPTPα comprises the sequence depicted in SEQ ID NO. 1.

15. (New) The antibody of claim 13, wherein the epitope to which the antibody is raised is part or all of the extracellular domain of human RPTPα.

16. (New) The antibody of claim 15, wherein the epitope is within residues 1 to 150 of the amino acid sequence depicted in SEQ ID NO. 1.

17. (New) A method for detecting the presence of human RPTPα in a biological sample, comprising incubating a biological sample with a detectably labeled antibody specific for an epitope of RPTPα and detecting the antibody, wherein detection of the antibody indicates the presence of human RPTPα in the sample.

18. (New) The method of claim 17, wherein the biological sample is a biological fluid, a tissue extract, or cell extract or culture.

19. (New) The method of claim 18, wherein the cell extract or culture is an extract or culture of lymphocytes or leucocytes.

20. (New) The method of claim 18, wherein the biological sample is contacted with a solid phase support.

21. (New) The method of claim 20, wherein the solid phase support is capable of immobilizing cells, cell particles, or soluble proteins.

22. (New) The method of claim 21, wherein the solid phase support is selected from the group consisting of nitrocellulose, glass, polystyrene, polypropylene, polyethylene, dextran, nylon, amylases, natural and modified celluloses, polyacrylamides, gabbros, and magnetite.

23. (New) The method of claim 17, wherein the antibody is detectably labeled by linking the antibody to an enzyme, wherein the enzyme reacts with a substrate to produce a detectable moiety.

24. (New) The method of claim 23, wherein the enzyme is malate dehydrogenase, staphylococcal nuclease, delta-5-steroid isomerase, yeast alcohol dehydrogenase, alpha-glycerophosphate dehydrogenase, triose phosphate isomerase, horseradish peroxidase, alkaline phosphatase, asparaginase, glucose oxidase, beta-galactosidase, ribonuclease, urease, catalase, glucose-6-phosphate dyhydrogenase, glucoamylase, or acetylcholinesterase.

25. (New) The method of claim 23, wherein detection of the moiety is accomplished by colorimetry.

26. (New) The method of claim 17, wherein the antibody is radioactively labeled or fluorescently labeled.

27. (New) The method of claim 26, wherein the fluorescently labeled antibody is labeled with fluorescein, isothiocyanate, rhodamine, phycoerythrin, phycocyanin, allophycocyanin, o-phthaldehyde, or fluorescamine.

28. (New) The method of claim 17, wherein the antibody is labeled with a fluorescence emitting metal.

29. (New) The method of claim 28, wherein the fluorescence emitting metal is a species of the lanthanide series of metals.

30. (New) The method of claim 29, wherein a lanthanide metal is ^{152}Eu.

31. (New) The method of claim 17, wherein the antibody is labeled with a chemiluminescent compound or a bioluminescent compound.

32. (New) The method of claim 31, wherein the chemiluminescent compound is selected from the group consisting of luminal, isoluminol, theromatic acridinium ester, imidazole, acridinium salt, and oxalate ester.

33. (New) The method of claim 31, wherein the bioluminescent compound is selected from the group consisting of luciferin, luciferase, and aequorin.

34. (New) The method of claim 17, wherein the antibody is specific to at least one epitope of a human RPTPα that comprises the amino acid sequence depicted in SEQ ID NO. 1.

35. (New) The method of claim 17, wherein presence of human RPTPα is detected in a biological sample *in situ* or *in vitro*.

36. (New) The method of claim 17, wherein the biological sample is obtained from an individual with a diseased tissue.

37. (New) The method of claim 36, wherein the diseased tissue is a brain, liver, kidney, spleen, or placenta.

38. (New) The method of claim 37, wherein the brain is a fetal brain.

39. (New) The method of claim 37, wherein the liver is a fetal liver.

40. (New) A method for determining an individual's susceptibility to insulin-dependent cellular activity, comprising determining in a biological sample whether the activity of RPTPα is greater than normal, wherein overactivity of RPTPα is an indicator that insulin-dependent cellular activity is likely to be totally or partially inhibited.

41. (New) The method of claim 40, wherein the step of determining whether the activity of RPTPα is greater than normal comprises (i) treating the biological sample with an antibody specific to RPTPα; (ii) quantitatively or qualitatively detecting antibody-specific binding to RPTPα; and (iii) comparing the level or amount of quantitative or qualitative binding from the biological sample with a control biological sample that is representative of normal RPTPα activity in a normal individual.

42. (New) The method of claim 40, wherein the antibody is specific for at least one epitope of a human RPTPα.

43. (New) The method of claim 42, wherein the amino acid sequence of the human RPTPα comprises the sequence depicted in SEQ ID NO. 1.

44. (New) The method of claim 43, wherein the epitope to which the antibody is raised is part or all of the extracellular domain of human RPTPα.

45. (New) The method of claim 44, wherein the epitope is within residues 1 to 150 of the amino acid sequence depicted in SEQ ID NO. 1.